

REMARKS

The claims have been amended to more clearly define the invention as disclosed in the written description. In particular, claim 4 has been cancelled, while claim 3 has been amended to include the limitations of claim 4. In addition, claims 3, and 14-16 have been amended for clarity.

The Examiner has rejected claims 3-6 and 9-14 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,067,125 to May. The Examiner has further rejected claim 3 under 35 U.S.C. 102(e) as being anticipated by U.S. Patent 6,037,986 to Zhang et al. In addition, the Examiner has rejected claims 15 and 16 under 35 U.S.C. 103(a) as being unpatentable over May in view of U.S. Patent 5,844,627 to May et al.

The May patent discloses a structure and method for film grain noise reduction in which an input video signal is applied to a spatial filter 102 and a temporal filter 101, the outputs therefrom being applied to a weighted average circuit 104 which provides a weighted average of the signals from the spatial and temporal filters.

The Examiner has indicated that May discloses:

"determining a spatial spread (Equation (5) in column 5) of a set of original pixel values ($P_t M_i$) (Fig. 2, numerals 201a-201e and represented as " p_i " in equations (3) in column four and (6) in column five.) in at least one image (fig. 2, num. 200) of the image sequence (V_1) (Fig. 1, num. 105);"

As explained in Applicants' last Response, a "spread" is a measure based on differences between pixel values, hence a "spatial spread" is a measure based on the differences between pixel values in the same image. While May discloses "a set of original pixel values (P_i M_i) in at least one image", there is no disclosure of "determining a spatial spread of a set of original pixel values". Rather, May discloses computing a scaled mean value μ_s (equation 3 col. 4), computing a scaled sum of squares ss of the pixel values (equation 4, col. 5), and computing a scaled variance σ^2 which, as shown in equation 5, col. 5, is based on a difference between the scaled sum of squares ss and the square of the scaled means value μ_s .

The Examiner now states:

"claim 3 is broad enough so that May (US Patent 6,067,125 A) discloses determining a spatial spread (or equation 5 that is a difference or spread function as shown in col. 5, line 21 or also referred to as "variance" in col. 5, line 19 of one image) of a set of original pixel values (represented as variable p_i that correspond to any one of the pixels 201a-201e of fig. 2). Note that equation 5 does not explicitly show variable p_i . Rather equation 5 is a function of "sum of squares" in col. 5, line 20 and "scaled mean value" in col. 4, line 51. Where each of scaled mean value and sum of squares is a function of p_i , which corresponds to the claimed original pixel values, as shown in equation 3 on col. 4, line 55 and equation 4 in col. 5, line 7, respectively. Thus, giving a broadest reasonable interpretation equation 5 is calculating a difference between pixel values, p_i , of the same image through the use of the scaled mean value and the sum of squares value that are both a function of p_i which

corresponds to the claimed pixel values in the same image."

In claims 3 and 14-16, a definition of "spatial spread" is now included, and states "said spatial spread being a measure based on differences between pixel values in an image". As such, in order for there to be anticipation, there must be some calculation of "differences between pixel values in an image".

Applicants submit that May neither discloses or suggests "determining a spatial spread of a set of original pixel values (P_t , M_i) in at least one image of the image sequence (V_1), said spatial spread being a measure based on differences between pixel values in an image".

The Examiner has further indicated that May discloses:

"determining statistics (Fig. 1, num. 102 determines "statistics" in col. 4, line 39 or "variance σ^2 " in col. 5, line 19) from said spatial spread in said at least one image of the image sequence (v_1);"

Applicants submit that the Examiner is mistaken. In particular, while May mentions the term "statistics", May, as noted in col. 4, lines 39-42, "computes local image statistics for each filtered pixel. In this embodiment, the local statistics include the mean and variances of the pixels of the 5-pixel kernel." May neither discloses or suggests determining statistics from the spatial spread.

The May et al. patent discloses a structure and method for reducing spatial noise, in which a means for calculating a variance


is disclosed. However, Applicants submit that claims 15 and 16 both claim "computing means for determining a spatial spread of a set of original pixel values (P_t , M_i) in at least one image of the image sequence (V1)".

Further, as indicated above, "variance" as disclosed in May neither shows nor suggests the "spatial spread" as claimed in the subject invention.

In view of the above, Applicants believe that the subject invention, as claimed, is neither anticipated nor rendered obvious by the prior art, either individually or collectively, and as such, is patentable thereover.

Applicants believe that this application, containing claims 3, 5, 6 and 9-16, is now in condition for allowance and such action is respectfully requested.

Respectfully submitted,

by 
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